

view there is no inconsistencies between animal and epidemiology studies. The comparison between experimental and epidemiological studies clearly shows that human boron exposures, even in the highest exposure conditions, are too low to reach the blood boron concentrations that would be required to exert adverse effects on reproduction. Taking the epidemiological study results together, classifying boric acid and sodium borates as “presumed reproductive human toxicant (category 1B)” seems scientifically not reasonable. The results of the epidemiological studies (including the study performed in China) support for a down-classification of boric acid from the category 1B, H360FD to category 2, H360D; suspected of damaging the unborn child.

<http://dx.doi.org/10.1016/j.toxlet.2015.08.338>

P03-049

Genotoxic damage and occupational exposure to formaldehyde in anatomic pathology laboratory workers



C. Rivera*, J. Rosales

Occupational Health and Environment for Health National Center – National Institute of Health, Lima, Lima, Peru

Introduction: Formaldehyde is a genotoxic, mutagenic and carcinogenic chemical routinely used in anatomic pathology laboratories. Levels reported in workplace air often exceed permissible exposure limits and preventive measures are insufficient; which raises a problem in occupational health. **Aims:** To evaluate genotoxic damage and occupational exposure to formaldehyde in workers of anatomic pathology laboratories. **Methods:** The study was carried out in 42 health workers exposed to formaldehyde from three anatomic pathology laboratories and 38 unexposed workers. Exposure level to formaldehyde in the workplace air was evaluated by applying spectrophotometric method with chromotropic acid. Evaluation of genetic damage was performed by applying genotoxicity biomarkers such as micronucleus and nuclear abnormalities frequency in epithelial cells from the buccal mucosa and comet assay in capillary blood lymphocytes. **Results:** The mean concentration of formaldehyde in air was 0.96 mg/m³ (min = 0.311 mg/m³, max = 1.466 mg/m³), exceeding the threshold limit value (TLV-ceiling = 0.37 mg/m³). Workers exposed to formaldehyde had micronucleus, nuclear buds and binucleated cells frequencies significantly increased in relation to the unexposed group (*p* 0.05). **Conclusions:** Workers in anatomic pathology laboratories showed exposure to high concentrations of formaldehyde in the workplace and had increased genotoxic damage in the buccal mucosa. These results, coupled with carcinogenic activity and insufficient measures to prevent exposure, point out a high occupational risk situation, which must be addressed by government agency responsible for occupational health and safety by implementing a comprehensive risk management program.

<http://dx.doi.org/10.1016/j.toxlet.2015.08.339>

P03-050

Negative effects of Azadirachtin (Neem-Azal) on non ciliated species *Drosophila melanogaster* (Diptera): Delayed effects on reproduction



A. Nadia*, O. Chemessedine, B. Bilel, J. Dominique, D.B.K.-M. Samira Badji-Mokhtar

University of Annaba, Biology, Annaba, France

Azadirachtin, derived from neem tree (*Azadirachta indica* A. Juss) is used in traditional medicine in Asia and Africa; this biologically active molecule is immuno-stimulant, hypoglycemic, antibiotic, contraceptive, etc. and possesses also a pesticide action. This natural pesticide is very effective in crop pests but the recent literature note contradictions on its safety towards non-target organisms. Azadirachtin acts as an antagonist of juvenile hormone (JH) and 20-hydroxyecdysone (20E), but its mechanism of action remains still unknown. The objective of this study is to determine the effects of Neem-Azal (commercial formulation at 1% azadirachtin) on the reproduction (fecundity, fertility, number of cyst and oocytes) of adults' males and females of *Drosophila melanogaster*, which survived from treated pupae. Inhibition doses of adult emergence (ID₂₅: 0.59 µg and ID₅₀: 1.10 µg), were evaluated, by topical application on newly eclosed pupae. Subsequently, the surviving adults from control and treated series were collected and males and females coupled following different conditions: (male_{control} × female_{control}; male_{control} × female_{ID25}; male_{ID25} × female_{control}; male_{ID25} × female_{ID25}; male_{control} × female_{ID50}; male_{ID50} × female_{control} and male_{ID50} × female_{ID50}). Results showed that Neem-Azal reduced significantly the fertility and fecundity in all conditions excepted for male_{ID25} × female_{control}. Then, Azadirachtin tested at ID₅₀ on newly eclosed pupae causes a significant decrease in the number of cyst and oocytes of adults' males and females that survived from treated pupae; this result can explain the decrease in the fertility and fecundity observed in adults. In conclusion, azadirachtin acts with delayed action in adult reproduction but its mechanism of action remains to be specified.

<http://dx.doi.org/10.1016/j.toxlet.2015.08.340>

P03-052

Plasma biochemical changes in *Clarias gariepinus* exposed to cypermethrin and chlorpyrifos



O. Samuel*, L. Eletuo, B. Esan

University of Lagos, Marine Sciences, Lagos, Nigeria

The acute toxicity and plasma biochemical changes [Aspartate aminotransferase (AST), Alanine aminotransferase (ALT), Alkaline phosphatase (ALP), Lactate dehydrogenase (LDH), Glucose (GLU), Triglyceride (TG), Total protein (TP) and Cholesterol (CHOL)] in African catfish, *Clarias gariepinus* exposed to pesticides (cypermethrin and chlorpyrifos) were evaluated in a static renewal laboratory bioassay. The acute toxicity was carried out for 96 h while for the biochemical assay, *C. gariepinus* was exposed to sub-lethal concentrations (1/10, 1/50, and 1/100th) of the 96hLC₅₀ of cypermethrin and chlorpyrifos for 7, 14 and 21 days. Based on the derived 96 h LC₅₀s and toxicity factor, chlorpyrifos (0.00201 ml/l) was found to be almost two times more toxic than cypermethrin (0.00379 ml/l) on *C. gariepinus*. The results of the biochemical assay showed that the mean AST enzyme activity in the plasma of *C.*